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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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JUL 19 1996

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of )

)  
Amendment of Parts 2 and 15 of the )  
Commission's Rules Regarding Spread )  
Spectrum Transmitters )

ET Docket No. 96-8  
RM-8435, RM-8608, RM-8609

**U S WEST, INC. REPLY COMMENTS**

U S WEST, Inc. ("U S WEST") submits this reply in support of several comments filed in the above-referenced proceeding.<sup>1</sup> In the NPRM, the Federal Communications Commission ("Commission") inter alia, proposes to permit the use of higher directional antenna gain for spread spectrum systems operating in the 5725-5850 MHz band ("5800 MHz band") and tentatively concludes that it should not permit increased antenna gain in the 2400-2483.5 MHz band ("2400 MHz band"). The Commission also proposes to require reduction of transmitter output power by 1 dB for every 3 dB that the antenna gain exceeds 6 dBi.

U S WEST limits its comments to discussion of the Commission's proposals concerning antenna gain limits. Specifically, U S WEST supports elimination of the

<sup>1</sup> In the Matter of Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters, Notice of Proposed Rule Making, 11 FCC Rcd. 3068 (1996) ("NPRM"). Commenters referenced herein include ADTRAN; Apple Computer, Inc. ("Apple"); Cushcraft Corporation ("Cushcraft"); Cylink Corporation ("Cylink"); Metricom, Inc. ("Metricom"); Microwave Communications Technology Inc. ("Microwave Communications"); The Part 15 Coalition ("Part 15 Coalition"); Western Multiplex Corporation ("Western Multiplex").

6 dBi limit on directional antenna gain in both the 5800 MHz and 2400 MHz bands. In addition, U S WEST opposes the Commission's output power offset proposal. U S WEST's positions are consistent with the Commission's goals of promoting spectrum efficiency and rapid delivery of communications services. As such, adoption of the Commission's proposals as discussed herein will serve the public interest.

I. **THE DIRECTIONAL ANTENNA GAIN LIMIT SHOULD BE REMOVED FROM BOTH THE 5800 AND 2400 MHZ BANDS**

U S WEST supports the Commission's proposal to remove the directional antenna gain limit of 6 dBi currently imposed on fixed point-to-point spread spectrum systems operating in the 5800 MHz band. U S WEST agrees with the Commission that this proposal will allow licensees to readily establish radio links capable of longer transmission distances without the delays and costs associated with frequency coordination and licensing.<sup>2</sup> For these reasons, U S WEST, as well as several other commenters, supports removal of the antenna gain limitation in the 2400 MHz band as well.<sup>3</sup>

The Commission proposes to remove the antenna gain limit only in the 5800 MHz band because there are, generally, fewer operators in that band (compared with the 2400 MHz band) and, specifically, few mobile users. Therefore, according

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<sup>2</sup> Id. at 3069 ¶ 9.

<sup>3</sup> Part 15 Coalition at 2-4; Western Multiplex at 3-4; Microwave Communications at 2; Metricom at 3-5; Apple at 8; Cylink at ii, 2-4, 16.

to the Commission, the potential for interference is low. The Commission's justification for limiting its proposal to the 5800 MHz band appears to be based solely on population (or lack thereof) of operations in the band. Since the 2400 MHz band is more congested, the Commission concludes that removal of the antenna gain limit would not be prudent as there could be increased interference. Only a few commenters agree with the Commission.<sup>4</sup> These comments, like the Commission's tentative conclusion, however, merely speculate that increased antenna gain "could cause" or "is likely to produce" harmful interference in the 2400 MHz band and fail to provide any evidence to support those statements.<sup>5</sup> The facts lead to a decidedly different conclusion.

For six years no limits have been placed on the amount of directional antenna gain that can be employed by fixed point-to-point operations in the 2400 and 5800 MHz bands.<sup>6</sup> During those six years there have been no recorded complaints of interference despite an ever-increasing number of operations in these bands.<sup>7</sup> Cushcraft and ADTRAN ignore this fact. In promulgating final rules, the Commission should not.

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<sup>4</sup> See, e.g., Cushcraft at 2-3; ADTRAN at 2.

<sup>5</sup> See Metricom at 3.

<sup>6</sup> Under regulations previously in effect there were no antenna gain limits. Adoption of new rules limited maximum directional antenna gain to 6 dBi (unless accompanied by an output power decrease). However, waiver of this limit was granted to several operators in the two bands. NPRM, 11 FCC Rcd. at 3069 ¶ 6 n.8

<sup>7</sup> Western Multiplex at 5 (Western Multiplex is unaware of any cases of reported unacceptable interference in either the 2400 or 5800 MHz bands due to spread spectrum systems operating in excess of 6 dBi); Cylink at 8 (no reported cases of interference); Metricom at 3; Part 15 Coalition at 3.

Moreover, as several commenters note, Part 15 requires unlicensed operators to accept whatever interference their operations receive and to correct any interference their operations cause.<sup>8</sup> Section 15.5 specifically provides:

Operation [under this part] is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station, by another [operation] [under this part], [or] by industrial, scientific and medical (ISM) equipment. . . .

The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference.<sup>9</sup>

As noted above, commenters operating in these bands -- including U S WEST affiliates -- have not experienced any interference problems in these bands. U S WEST affiliates abide by Part 15 and take due care to ensure that their transmission equipment does not interfere with other operators. Based on U S WEST's experience and the comments referenced above, the Commission must conclude that these unlicensed operators abide by the Part 15 rules and that removal of the antenna gain limit on a permanent basis in the 2400 and 5800 MHz bands will not alter their code of conduct.

The public interest benefits of increased antenna gain should not be ignored either. U S WEST Communications, Inc. ("USWC"), which provides local exchange service in fourteen mid-western and western states, currently relies on (and has future plans for additional) Part 15 systems (in both the 2400 and 5800 MHz bands)

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<sup>8</sup> See, e.g., *Metricom* at 4; *Cylink* at 6.

<sup>9</sup> 47 CFR § 15.5(b), (c).

to provide both rural and urban fixed wireless loops in areas where wireline construction is delayed due to environmental factors or is cost-prohibitive.<sup>10</sup>

Similarly, U S WEST NewVector Group ("NewVector"), which provides cellular service in twelve states, relies heavily on Part 15 systems to provide various intermediate links in predominantly hard-to-serve rural terrain in eight states.<sup>11</sup>

Finally, U S WEST notes that increased antenna gain provides a stronger receive signal which enhances the quality of service to the public. In other words, implementing on a permanent basis antenna gain restrictions in the 2400 MHz band could result in any number of the following: expensive system changes; increased installation and operating costs; or interrupted, less reliable, delayed, or eliminated service.<sup>12</sup>

U S WEST also agrees with other commenters that additional public interest benefits are realized with increased antenna gain. For instance, directional antennas increase frequency reuse<sup>13</sup> and spectrum sharing in an uncoordinated environment.<sup>14</sup> Higher gain also increases communication ranges, which provides communications solutions not only for consumers, but for businesses and

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<sup>10</sup> See also Cylink at 3.

<sup>11</sup> NewVector currently has 48 point-to-point spread spectrum transmitters operating in the 2400 MHz band. See also id. at 2, 5.

<sup>12</sup> See, e.g., id. at 4 (failure to amend the rules would necessarily lead to installation of more antennas and repeater systems which could lead to delay and expense). See also NPRM, 11 FCC Rcd. at 3069 ¶ 9 (The Commission notes that "the ability to establish transmission links quickly could be critical in emergency situations.").

<sup>13</sup> Western Multiplex at 6; Part 15 Coalition at 3; Microwave Communications at 2.

<sup>14</sup> Part 15 Coalition at 3.

governmental institutions, as well.<sup>15</sup> Finally, increased antenna gain reduces interference threats posed by Part 18 ISM systems.<sup>16</sup>

Based on all of the above, U S WEST submits that additional restrictions on operations will serve only to eliminate rapid, efficient, and less costly alternative services. U S WEST urges the Commission to adopt a final rule which allows increased directional antenna gain in the 5800 and 2400 MHz bands.

## II. OUTPUT POWER OFFSET IS UNNECESSARY

U S WEST opposes the Commission's proposal to require, in either band, reductions of transmitter output power by 1 dB for every 3 dB that the directional antenna gain exceeds 6 dBi. The Commission claims that this rule will "maintain an 'equivalent' area of interference, i.e., the geographic area over which interference could result with a directional antenna as compared to the area obtained with an omnidirectional antenna."<sup>17</sup>

Such power offsets would be as detrimental to operations in the 5800 and 2400 MHz bands as implementing the antenna gain limit proposals. For example, adoption of this offset proposal would shorten the wireless transmission paths upon which NewVector now relies. As a result, NewVector would have to deploy additional equipment to make up for this inadequacy, consequently increasing costs

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<sup>15</sup> See Part 15 Coalition at 4; Cylink at 2.

<sup>16</sup> Part 15 Coalition at 3; Metricom at 4; Cylink at 6.

<sup>17</sup> NPRM, 11 FCC Rcd. at 3071 ¶ 16.

to subscribers.<sup>18</sup> Any perceived advantages to the power offset are outweighed by the disadvantages to the public. The provision of reliable and efficient service should not be sacrificed for only a "slight" reduction in effective radiated power.<sup>19</sup>

### III. U S WEST'S COMMENTS IN THIS PROCEEDING ARE CONTAINED HEREIN

Finally, U S WEST wishes to point out that comments in this docket filed by a U S WEST employee last April<sup>20</sup> do not represent official U S WEST positions. Those comments indicated that U S WEST: 1) supports the proposal to restrict spread spectrum systems employing directional antennas with gains above 6 dBi to commercial and industrial operators and to exclude sales to the general public; 2) does not support any new requirement to avoid exposure to excessive radiation levels when using directional antennas because this is not a valid technical concern when using these systems; and 3) does not support any new requirement to avoid interference to licensed systems in Canada and Mexico because we believe that the existing rules contain adequate safeguards. U S WEST takes no position on these issues; its views in this proceeding are contained entirely within this document. Accordingly, the comments of Mr. Townley should not be considered to be connected in any way with U S WEST.

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<sup>18</sup> See Western Multiplex at 10; Cylink at 12.

<sup>19</sup> See Western Multiplex at 7-8; Cylink at 12-13.

<sup>20</sup> Scott Townley, ET Docket No. 96-8, dated April 26, 1996.

#### IV. CONCLUSION

For the last several years, Part 15 operators of point-to-point, spread spectrum systems in the 2400 and 5800 MHz bands have been able to provide efficient and successful service as a result of the Commission's flexibility in this unlicensed environment. U S WEST implores the Commission to disregard unfounded statements about so-called problems resulting from permanent adoption of increased antenna gain in these two bands. Instead, the Commission should give great weight to the experiences of current operators in these bands. In doing so, the Commission will recognize that providing the flexibility -- currently allowed pursuant to waiver -- on a permanent basis will further encourage spectrum efficiency and the provision of enhanced services and will therefore serve the public interest.

Respectfully submitted,

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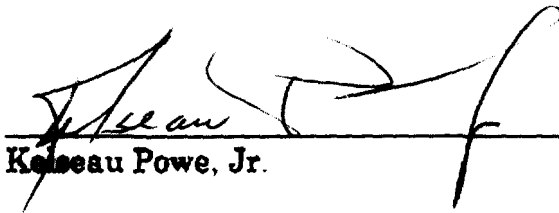
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July 19, 1996



## **CERTIFICATE OF SERVICE**

I, Kelseau Powe, Jr., do hereby certify that on this 19th day of July, 1996, I have caused a copy of the foregoing **U S WEST, INC. REPLY COMMENTS** to be served via first-class United States Mail, postage prepaid, upon the persons listed on the attached service list.

  
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